**Amendment to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1–16 **(Canceled)**

Claim 17. **(New)** An apparatus for purifying water comprising a first filtration vessel with opposing inlet and outlet ends and at least three spiral wound elements in series within said first filtration vessel; wherein said at least three elements in series define a lead element proximate to said inlet end of said first filtration vessel and a tail element proximate to said outlet end of said first filtration vessel; said at least three elements in series comprising an element having a maximum value of standard specific flux, an element having a minimum value of standard specific flux, and an element having an intermediate value of standard specific flux, wherein said maximum value of standard specific flux divided by said minimum value of standard specific flux is greater than 2 and said intermediate value of standard specific flux divided by said minimum value of standard specific flux is between 1.25 and 1.75.

Claim 18. **(New)** The apparatus of claim 17 wherein said element having a maximum value of standard specific flux belongs to a first element type, said element having a minimum value of standard specific flux belongs to a second element type, and the standard specific flux for said first element type divided by the standard specific flux for said second element type is greater than 2.

Claim 19. **(New)** The apparatus of claim 17 wherein the standard specific flux of said tail element divided by the standard specific flux of said lead element is greater than 2.

Claim 20. **(New)** The apparatus of claim 19 wherein the standard specific flux for said tail element is greater than 1.5 L/m2/br/bar.

Claim 21. **(New)** The apparatus of claim 19 wherein said lead element has a standard specific flux less than 1.0 L/m2/hr/bar.

Claim 22. **(New)** The apparatus of claim 19 wherein said tail element has a feed spacer cross sectional area that is at least 15% less than the feed spacer cross sectional area of said lead element.

Claim 23. **(New)** The apparatus of claim 22 wherein said tail element has a feed spacer cross sectional area that is at least 30% less than the feed spacer cross sectional area of said lead element.

Claim 24. **(New)** The apparatus of claim 19 wherein the feed spacer for said tail element has a standard pressure gradient greater than 0.4 bar/m.

Claim 25. **(New)** The apparatus of claim 19 wherein the feed spacer for said tail element has a standard pressure gradient in the axial direction that is 50% greater than the standard pressure gradient in the axial direction for the feed spacer sheet of said lead element.

Claim 26. **(New)** The apparatus of claim 19 wherein the ratio of standard solute permeability to standard specific flux for said tail element divided by the ratio of standard solute permeability to standard specific flux for said lead element is less than 2.

Claim 27. **(New)** The apparatus of claim 19 where said tail element produces a permeate salt concentration of less than 500 ppm when tested using 25°C, 32000 ppm NaCI in the feed, 8% recovery, and a flux of 27 L/m2/hr.

Claim 28. **(New)** The apparatus of claim 19 wherein said first filtration vessel is one of at least three parallel filtration vessels.

Claim 29. **(New)** The apparatus of claim 17 further comprising a barrier to permeate flow within said first filtration vessel, said barrier defining first and second combined permeate streams, said first combined permeate stream comprising the entire of permeate from said lead element and said second combined permeate stream comprising the entire of permeate from said tail element, said barrier further preventing substantial mixing of permeate between said combined permeate streams.

Claim 30. **(New)** The apparatus of claim 29 wherein said barrier is essentially impenetrable, said first combined permeate stream comprises the entire of permeate from said element having a maximum value of standard specific flux, said maximum value of standard specific flux divided by said minimum value of standard specific flux is greater than 2, and said first combined permeate stream becomes the feed stream to a second filtration vessel.

Claim 31. **(New)** A process for purifying water comprising the steps of:

flowing a feed solution through a first pressure vessel containing at least three spiral wound elements in series, said at least three elements in series defining a lead element proximate to the feed inlet end of said vessel and a downstream element; wherein said at least three elements in series comprise an element having a maximum value of standard specific flux and an element having a minimum value of standard specific flux, and said maximum value of standard specific flux divided by said minimum value of standard specific flux is greater than 1.5;

applying pressure to said feed solution to cause permeate to pass through each element within said vessel, and

removing permeate and concentrate solutions from said vessel,

wherein the feed solution has an osmotic pressure greater than 20 bar at the inlet of said vessel.

Claim 32. **(New)** The process of claim 31 wherein said element having a maximum value of standard specific flux belongs to a first element type, said element having a minimum value of standard specific flux belongs to a second element type, and the standard specific flux for said first element type divided by the standard specific flux for said second element type is greater than 2.

Claim 33. **(New)** The process of claim 31 wherein the standard specific flux for said downstream element divided by the standard specific flux for said lead element is greater than 1.5.

Claim 34. **(New)** The process of claim 33 wherein said downstream element has a standard specific flux that is greater than 1.5 L/m2/hr/bar.

Claim 35. **(New)** The process of claim 34 wherein the average net driving pressure for said lead element divided by the average net driving pressure for said downstream element is greater than 2.

Claim 36. **(New)** The process of claim 33 wherein the difference in applied pressure and osmotic pressure at the inlet of said vessel divided by the difference in applied pressure and osmotic pressure at the outlet of said vessel is greater than 2.

Claim 37. **(New)** The process of claim 36 wherein said downstream element is proximate to the outlet end of said vessel.

Claim 38. **(New)** The process of claim 36 wherein said lead element is operated with an average flux that is less than twice the average flux for said vessel.

Claim 39. **(New)** The process of claim 34 wherein said vessel contains at least five spiral wound elements in series, the volume of said concentrate solution produced is no more than twice the volume of said permeate solution produced, the average flux for said vessel is at least 70% of said average flux for said lead element, and said lead element has an average flux of between 10 and 27 L/m2/hr.

Claim 40. **(New)** The process of claim 39 where said average flux for said vessel is at least 80% of said average flux for said lead element.

Claim 41. **(New)** The process of claim 36 wherein said lead element is operated with an average flux less than 34 $L/m^2/hr$ and said vessel is operated with an average flux greater than 24 L/m2/hr.

Claim 42. **(New)** The process of claim 41 wherein said concentrate solution has an osmotic pressure that is more than twice said osmotic pressure at the inlet.

Claim 43. **(New)** The process of claim 34 wherein said downstream element has a feed spacer cross sectional area that is at least 30% less than the feed spacer cross sectional area of said lead element.

Claim 44. **(New)** The process of claim 34 wherein said downstream element has a NaCl passage greater than 20% when said element is tested individually using a flux of 27 L/$m^2$/hr, 8% recovery, and a 25°C feed solution consisting of 32000 ppm NaCl in water, and wherein said downstream element has a sulfate passage less than 1% when tested individually using a flux of 27 L/m2/hr, 8% recovery, and a 25°C feed solution consisting of 32000 ppm NaCl and 2000 ppm $MgSO_4$ in water.

Claim 45. **(New)** The process of claim 34 wherein said steps of claim 51 are preceded sequentially by the following actions:

operating said vessel by flowing a feed solution through said vessel, applying pressure, and removing permeate and concentrate solutions, said vessel during this operation containing an initial set of reverse osmosis elements, said initial set of reverse osmosis element consisting of elements having a standard specific flux less than 1.25 L/$m^2$/hr/bar, then

removing from said vessel at least one of said elements having a standard specific flux less than 1.25 L/$m^2$/hr/bar, and then

adding at least one subsequent element to said vessel, said subsequent element having a standard specific flux greater than 1.5 L/m2/hr/bar.

Claim 46. **(New)** The process of Claim 31 further comprising an essentially impenetrable barrier to permeate flow within said first filtration vessel, said barrier defining first and second combined permeate streams, said first combined permeate second combined permeate stream comprising the entire of permeate from said tail element; wherein said first stream comprising the entire of permeate from said lead element and said combined permeate stream becomes the feed stream to a second filtration vessel, and wherein said lead element divided by said minimum value of standard specific flux is greater than 1.5.

Claim 47. **(New)** A process for purifying water comprising the steps of:

flowing a feed solution through a pressure vessel comprising at least three spiral wound reverse osmosis elements, said at least three spiral wound elements comprising an upstream element, a downstream element, and an intermediate element located between said upstream and said downstream elements, wherein the standard specific flux for said downstream element divided by the standard specific flux for said upstream element is greater than 2, and the standard specific flux for said intermediate element divided by the standard specific flux for said upstream element is between 1.25 and 1.75,

applying pressure to said feed solution to cause permeate to pass through each element within said vessel, and

removing permeate and concentrate solutions from said vessel, wherein the difference in applied pressure and osmotic pressure at the inlet of said vessel divided by the difference in applied pressure and osmotic pressure at the outlet of said vessel is greater than 2.

Claim 48. **(New)** The process of claim 47 wherein said downstream element has a standard specific flux greater than 1.5 L/m2/hr/bar.

Claim 49. **(New)** The process of claim 47 wherein said feed solution has an osmotic pressure greater than 20 bar at the inlet of said vessel.